Question Paper

Exam Date & Time: 28-Jun-2022 (10:00 AM - 12:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER BOT / B.Sc. PFT / BPT/ B.Sc. OPTOM. / B.Sc. CVT /B.Sc. RT /B.Sc. MIT /B.Sc. RRT&DT / B.Sc. EMT / B.Sc. AOTT / B.Sc. MLT / B.Sc. NMT / B.Sc. CND DEGREE EXAMINATION - JUNE 2022
SUBJECT: BIC1201 - BIOCHEMISTRY
(2020 SCHEME)

Marks: 50 **Duration: 120 mins.**

Answer all the questions.

1)	Write the reactions of gluconeogenesis from pyruvate mentioning the site and subcellular site.	(10)
2A)	Define micro and macro minerals. Mention the sources and THREE functions each of calcium and phosphorus.	(5)
2B)	Define biologic value of proteins. List the protein sources of high and low biologic values. Define limiting amino acids with suitable examples.	(5)
3A)	Explain the procedure and interpretation of oral glucose tolerance test. Add a note on significance of HbA1c estimation.	(5)
3B)	Explain the structure of starch and glycogen with schematic representation and list the difference between them.	(5)
3C)	Mention the site and subcellular site of lipolysis and describe the reactions. Name the regulatory enzyme.	(5)
3D)	Illustrate the complexes of ETC with their components and order of arrangement and mention the mobile electron carriers.	(5)
4A)	Write ONE reaction in the collagen biosynthesis which requires vitamin C and mention its significance.	(2)
4B)	Name the enzyme defect and tissue affected in Type I and Type V glycogen storage disorders.	(2)
4C)	Mention the TWO physiologically important compounds each derived from glycine and tyrosine.	(2)
4D)	What is the normal level of serum albumin? Name TWO conditions in which it is altered.	(2)
4E)	List TWO differences between DNA & RNA.	(2)

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Question Paper

Exam Date & Time: 30-Jun-2022 (10:00 AM - 12:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER BOT / BPT/ B.Sc. CVT /B.Sc. RT /B.Sc. MIT /B.Sc. RRT&DT / B.Sc. EMT / B.Sc. AOTT DEGREE EXAMINATION - JUNE/JULY 2022
SUBJECT: ANA1201 - ANATOMY - II
(2020 SCHEME)

Marks: 50 **Duration: 120 mins.**

Answer all the questions.

1. Describe the median nerve under following headings:

1A)	Origin and root value.	(2)
1B)	Course.	(2)
1C)	Distribution.	(5)
1D)	Applied anatomy.	(1)

2. Describe the gluteus maximus muscle under:

2A)	Attachments, nerve supply, actions.	(5)
2B)	Applied anatomy.	(1)
2C)	Mention Any EIGHT structures lying deep to it.	(4)

3A)	Describe the origin, course and distribution of obturator nerve.	(5)
3B)	Describe the attachments, nerve supply and action of sternocleidomastoid muscle.	(5)
3C)	Describe the elbow joint.	(5)
3D)	Describe the boundaries of popliteal fossa.	(5)
4A)	Mention the origin and applied aspect of radial artery.	(2)
4B)	List the carpal bones to which the flexor retinaculum is attached.	(2)
4C)	Mention the attachments of sartorius muscle.	(2)
4D)	Mention the formation and termination of cephalic vein.	(2)
4E)	Mention the muscles in the lateral compartment of leg and the nerve supplying them.	(2)

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Question Paper

Exam Date & Time: 02-Jul-2022 (10:00 AM - 12:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER BOT / B.Sc. PFT / BPT/ B.Sc. OPTOM. / B.Sc. CVT /B.Sc. RESPIRATORY THERAPY /B.Sc. MIT /B.Sc. RRT&DT / B.Sc. EMT / B.Sc. AOTT / B.Sc. MLT / B.Sc. NMT/B.Sc. RADIOTHERAPY TECHNOLOGY DEGREE EXAMINATION - JUNE/JULY 2022
SUBJECT: PHY1201 - PHYSIOLOGY - II
(2020 SCHEME)

Marks: 50 **Duration: 120 mins.**

All questions are compulsory. Write brief, clear and legible answers.
Illustrate your answers with diagrams and flow charts wherever appropriate.

1)	Name the Anterior pituitary hormones. Describe the actions of growth hormone. Add a note on Acromegaly. (3+5+2 = 10 marks)	(10)
2)	With the help of neat diagram describe the origin, course, and termination of pyramidal tract. List the differences between upper motor lesion and lower motor neuron lesion. (6+4 = 10 marks)	(10)
3A)	Explain the different phases of gastric juice secretion.	(5)
3B)	Define GFR, give its normal value. Explain briefly the factors regulating GFR. (2+3 = 5 marks)	(5)
3C)	Explain the ovarian changes during menstrual cycle and briefly explain the influence of different hormones on ovarian cycle. (3+2 = 5 marks)	(5)
3D)	Enumerate the functions of hypothalamus. Explain any ONE in detail. (3+2 = 5 marks)	(5)
4A)	Mention the cause and Any TWO features of Cretinism.	(2)
4B)	Enumerate the functions of gall bladder.	(2)
4C)	List the different types of small intestinal movements.	(2)
4D)	Classify sensory receptors based on type of stimulus with examples for each.	(2)
4E)	Mention the cause and treatment of Parkinson's disease.	(2)

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Question Paper

Exam Date & Time: 04-Jul-2022 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER B.Sc. RESPIRATORY THERAPY DEGREE EXAMINATION - JUNE/JULY 2022
SUBJECT: RES1201 - CLINICAL EXAMINATION IN RESPIRATORY CARE
(2020 SCHEME)

Marks: 100 **Duration: 180 mins.**

Answer all the questions.

1)	Enlist the indications of central venous pressure (CVP) monitoring. Describe the procedure for CVP catheter insertion and causes for the changes in CVP. (4+8+8 = 20 marks)	(20)
2)	Describe various lung volumes and capacities. Write any 4 indications of Spirometry and draw the volume time graph obtained by spirometry. (12+4+4 = 20 marks)	(20)
3)	Describe the factors influencing the effectiveness of communication during clinical encounters.	(10)
4)	Explain the normal electrocardiogram and its physiological correlation. (5+5 = 10 marks)	(10)
5A)	Write a note on Henderson-Hasselbach equation.	(5)
5B)	Explain APGAR score.	(5)
5C)	Write a note on pulse oximetry.	(5)

5D. Define the following terms:

i)	Orthopnea	(2)
ii)	Platypnea	(2)
iii)	Hyperventilation	(1)

5E)	Explain the components of Glasgow coma scale.	(5)
5F)	Explain the causes and characteristics of cough.	(5)
6A)	Define Pectus Carinatum and Pectus Excavatum.	(2)
6B)	Write the normal range for heart rate, respiratory rate, temperature and blood pressure for an adult patient.	(2)
6C)	What is the normal range for haemoglobin in males and females?	(2)
6D)	Enlist the chest radiographic findings for pneumothorax and pleural effusion.	(2)
6E)	Write the normal reference ranges for Serum sodium and potassium.	(2)

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Question Paper

Exam Date & Time: 06-Jul-2022 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER B.Sc. RESPIRATORY THERAPY DEGREE EXAMINATION - JUNE/JULY 2022
SUBJECT: RES1202 - RESPIRATORY CARE EQUIPMENT
(2020 SCHEME)

Marks: 100 **Duration: 180 mins.**

Answer all the questions.

1)	Explain the steps of endotracheal intubation. With the help of diagram, explain the phases of normal capnograph. Draw any three abnormal capnographs. (12+5+3 = 20 marks)	(20)

2. Explain the following modes of ventilation:

2A)	Assist Control Mode (A/C)	(5)
2B)	Continuous Mandatory Ventilation (CMV)	(5)
2C)	Synchronised Intermittent Mandatory Ventilation (SIMV)	(5)
2D)	Continuous Positive Airway Pressure (CPAP)	(5)

3)	Explain cardiac cycle and its components in detail with the help of a diagram	(10)
4)	Explain the various stages of sleep in adults and children. List any four indications of polysomnography. (8+2 = 10 marks)	(10)
5A)	Explain nitrogen washout technique for measurement of FRC and residual volume	(5)
5B)	Explain the PEP device and its use in mobilization of secretions	(5)
5C)	Explain the types of pharyngeal airways and its technique of insertion	(5)
5D)	Explain the types of calorimetry	(5)
5E)	Explain the technique for administering aerosol using pressurized metered dose inhaler	(5)
5F)	Explain the working of molecular sieve oxygen concentrator.	(5)
6A)	Define sustained maximal inspiration (SMI).	(2)
6B)	Calculate the air entrainment ratio and total output flow for 60% venturi	(2)
6C)	Name four physical methods commonly used to sterilize medical devices	(2)
6D)	State Charles's law.	(2)
6E)	List four factors that influence the effectiveness of a germicide	(2)

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Question Paper

Exam Date & Time: 08-Jul-2022 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER B.Sc. RESPIRATORY THERAPY DEGREE EXAMINATION - JUNE/JULY 2022
SUBJECT: RES1223 - PULMONARY DIAGNOSTICS I
(2020 SCHEME)

Marks: 100 **Duration: 180 mins.**

Answer all the questions.

1)	Explain in detail the stepwise interpretation of spirometry. Enlist the difference between obstructive and restrictive pattern based on FEV1 and FVC (12+8 = 20 marks)	(20)
2)	Explain the procedure for obtaining arterial blood samples by means of puncture. List the common pre-analytic, analytic and post-analytic errors in blood gas analysis. (8+12 = 20 marks)	(20)
3)	Write a note on atrial fibrillation and ventricular tachycardia with the help of an ECG	(10)
4)	Explain two methods for measuring ventilation, oxygen consumption, and carbon dioxide production during exercise	(10)
5A)	Explain in detail about broncho-reversibility testing	(5)
5B)	Explain the electrical conduction system of the heart.	(5)
5C)	Explain the common indices of oxygenation to assess the cause and severity of hypoxemia	(5)
5D)	Define metabolic acidosis. Explain the causes of metabolic acidosis.	(5)
5E)	Explain the relationship of changes in PCO_2 and HCO_3^- to pH with the help of Henderson-Hasselbalch equation	(5)
5F)	Explain in detail about single breath DLCO test	(5)
6A)	Enlist the indications for terminating a cardiopulmonary stress test	(2)
6B)	Mention the ECG changes seen in myocardial infarction	(2)
6C)	List two indications for respiratory muscle strength testing	(2)
6D)	Define residual volume	(2)
6E)	List two principles used by flow sensing spirometers to measure volume	(2)

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